

## CLAIMS

- 1 1. A method for providing information and services of a collaboration system that  
2 allows a plurality of members to interact collaboratively in a shared folder in a  
3 folder-based file system that is part of an operating system with a user interface,  
4 comprising:
  - 5 (a) including a collaborative interface in the operating system user interface;
  - 6 (b) using the collaborative interface to display information regarding the  
7 members collaborating within the context of a shared folder, through the  
8 use of the collaborative system;
  - 9 (c) determining changes made in the folder-based file system; and
  - 10 (d) communicating the changes to other members via the collaborative  
11 system.
- 1 2. The method of claim 1 wherein step (a) comprises designing and implementing a  
2 portion of the user interface as the collaborative interface.
- 1 3. The method of claim 1 wherein step (a) comprises enhancing the user interface  
2 to include the collaborative interface.
- 1 4. The method of claim 1 wherein step (a) comprises replacing a portion of the user  
2 interface with the collaborative interface.
- 1 5. The method of claim 1 wherein step (b) comprises using the collaborative  
2 interface to create a shared space underlying the operating system shared folder  
3 within which collaboration will occur.

- 1    6. The method of claim 5 wherein step (b) further comprises using the collaborative  
2    interface to invite one of the plurality of members to join the shared space.
- 1    7. The method of claim 5 wherein step (b) comprises displaying information  
2    regarding members in the shared space.
- 1    8. The method of claim 7 wherein the information regarding members in the shared  
2    space includes awareness information that indicates whether each member is  
3    on-line and available.
- 1    9. The method of claim 1 wherein step (c) comprises, for each synchronized file in  
2    the folder-based file system, maintaining a snapshot that contains sufficient  
3    information to allow a determination to be made whether that file has changed.
- 1    10. The method of claim 9 wherein step (c) further comprises receiving a notification  
2    from the folder-based file system that changes have been made to the folder-  
3    based file system and in response to the notification, examining each file  
4    snapshot to determine which file has changed.
- 1    11. The method of claim 1 wherein step (c) comprises connecting to the collaborative  
2    system via a web services interface.
- 1    12. The method of claim 1 wherein step (d) comprises maintaining a list of members  
2    who are in the shared folder.
- 1    13. The method of claim 12 wherein step (d) further comprises for each member who  
2    is in the shared folder, maintaining information indicating whether that member  
3    has contents of each synchronized file in the shared folder.

- 1 14. The method of claim 13 further comprising providing a stub file to each shared
- 2 folder member who does not have the contents of a synchronized file.
  
- 1 15. The method of claim 14 further comprising displaying the stub file in the user
- 2 interface.
  
- 1 16. The method of claim 15 further comprising downloading file contents from a
- 2 source when a user selects the stub file display.
  
- 1 17. The method of claim 16 wherein the source comprises a server.
  
- 1 18. The method of claim 16 wherein the source comprises a computer of another
- 2 member.
  
- 1 19. The method of claim 1 further comprising using the collaborative system to
- 2 disseminate file changes to members in the shared folder.
  
- 1 20. The method of claim 19 wherein the file changes are disseminated only as
- 2 compressed representations of such changes, such as binary differences, rather
- 3 than the entire file contents.
  
- 1 21. The method of claim 1 wherein step (b) comprises using the collaborative
- 2 interface to create a shared space underlying the operating system shared folder
- 3 within which collaboration will occur and wherein the method further comprises:
- 4 (e) forwarding a change made in the shared space to a file to a document
- 5 share engine in the shared space; and

6 (f) using the document share engine to make the file change to a  
7 corresponding file in the folder-based file system.

1 22. The method of claim 21 wherein step (f) comprises using a file synchronizer in  
2 the collaborative system that makes the change in the folder based file system  
3 under control of the document share engine.

1 23. The method of claim 21 further comprising:  
2 (g) using the document share engine to notify each of the plurality of  
3 members that a file change has occurred.

1 24. The method of claim 21 further comprising:  
2 (h) using the document share engine to display in the collaborative interface a  
3 list of the plurality of members and an indicator showing which of the  
4 plurality of members has opened a selected synchronized file.

1 25. The method of claim 1 wherein the collaborative interface comprises an on-line  
2 chat mechanism.

1 26. The method of claim 1 wherein the collaborative interface comprises a  
2 mechanism for creating and storing comments related to a selected file.

1 27. Apparatus for providing information and services of a collaboration system that  
2 allows a plurality of members to interact collaboratively in a shared folder in a  
3 folder-based file system that is part of an operating system with a user interface,  
4 comprising:  
5 means for including a collaborative interface in the user interface;

6                   an interface that connects the collaborative interface to the collaboration  
7                   system in order to retrieve and display information regarding the members in the  
8                   user interface;

9                   a file synchronizer that determines a change made in the folder-based file  
10                  system; and

11                  a document share engine that communicates the change to the  
12                  collaborative system.

1   28. The apparatus of claim 27 wherein the means for including the collaborative  
2                  interface comprises means for designing and implementing a portion of the user  
3                  interface as the collaborative interface.

1   29. The apparatus of claim 27 wherein the means for including the collaborative  
2                  interface comprises means for enhancing the user interface to include the  
3                  collaborative interface.

1   30. The apparatus of claim 27 wherein the means for including the collaborative  
2                  interface comprises means for replacing a portion of the user interface with an  
3                  interface specifically intended to support collaborative activity.

1   31. The apparatus of claim 27 wherein the interface comprises a web services  
2                  interface that allows the collaborative interface to interact with the collaboration  
3                  system to create a shared space.

1   32. The apparatus of claim 31 wherein the interface further comprises a web  
2                  services interface that allows the collaborative interface to interact with the  
3                  collaboration system to invite one of the plurality of members to join the shared  
4                  space.

1 33. The apparatus of claim 32 wherein the collaborative interface comprises means  
2 for displaying information regarding members in the shared space.

1 34. The apparatus of claim 33 wherein the information regarding members in the  
2 shared space includes awareness information that indicates whether each  
3 member is on-line and available.

1 35. The apparatus of claim 27 wherein the file synchronizer comprises means for  
2 maintaining for each synchronized file in the folder-based file system a snapshot  
3 that contains sufficient information to allow a determination to be made whether  
4 that file has changed.

1 36. The apparatus of claim 35 wherein the file synchronizer further comprises a file  
2 RAMP that receives a notification from the folder-based file system that changes  
3 have been made to the folder-based file system and means responsive to the  
4 notification for examining each file snapshot to determine which file has changed.

1 37. The apparatus of claim 27 wherein the file synchronizer comprises a web  
2 services interface that connects to the collaboration system.

1 38. The apparatus of claim 27 wherein the interface comprises a web services  
2 interface that allows the collaborative interface to interact with the collaboration  
3 system to create a shared space and wherein the document share engine  
4 comprises means for maintaining a list of members who are in the shared space.

1 39. The apparatus of claim 38 wherein the document share engine further comprises  
2 means for maintaining for each member who is in the shared space information

3                   indicating whether that member has contents of each synchronized file in the  
4                   shared space.

1   40. The apparatus of claim 39 further comprising means for creating a stub file and  
2                   providing the stub file to each shared space member who does not have the  
3                   contents of a synchronized file.

1   41. The apparatus of claim 40 further comprising means for displaying the stub file in  
2                   the user interface.

1   42. The apparatus of claim 41 further comprising means for downloading file  
2                   contents from a source when a user selects the stub file display.

1   43. The apparatus of claim 42 wherein the source comprises a server.

1   44. The apparatus of claim 42 wherein the source comprises a computer of another  
2                   member.

1   45. The apparatus of claim 27 wherein the document share engine comprises means  
2                   for determining changes in a file and means for providing that changes to the  
3                   collaboration system so that the changes are distributed to members in the  
4                   shared folder.

1   46. The apparatus of claim 45 wherein the document share engine provides the file  
2                   changes to the collaboration system as binary differences.

1   47. The apparatus of claim 27 wherein the interface comprises a web services  
2                   interface that allows the collaborative interface to interact with the collaboration

3 system to create a shared space and wherein the document share engine is  
4 located in the shared space and the document share engine further comprises  
5 means for receiving a change made in the shared space to a file; and means for  
6 communicating the change to the file synchronizer.

1 48. The apparatus of claim 47 wherein the file synchronizer comprises means for  
2 making the change in the folder based file system.

1 49. The apparatus of claim 47 wherein the document share engine comprises means  
2 for notifying each of the plurality of members that a file change has occurred.

1 50. The apparatus of claim 47 further comprising means cooperating with the  
2 document share engine and comprising means for displaying in the collaborative  
3 interface a list of the plurality of members and an indicator showing which of the  
4 plurality of members has opened a selected synchronized file.

1 51. The apparatus of claim 27 further comprising an on-line chat mechanism in the  
2 document share engine controlled by the collaborative interface.

1 52. The apparatus of claim 27 further comprises means controlled by the  
2 collaborative interface for creating and storing comments related to a selected  
3 file.

1 53. A computer program product for providing information and services of a  
2 collaboration system that allows a plurality of members to interact collaboratively  
3 in a shared folder in a folder-based file system that is part of an operating system  
4 with a user interface, the computer program product comprising a computer  
5 usable medium having computer readable program code thereon, including:

6                   program code for including a collaborative interface in the user interface;  
7                   program code for using the collaborative interface to display information  
8                   regarding the members collaborating within the context of the shared folder,  
9                   through the use of the collaborative system;  
10                  program code for determining a change made in the folder-based file  
11                  system; and  
12                  program code for communicating the changes to other members via the  
13                  collaborative system.

1 54. A computer data signal embodied in a carrier wave for providing information and  
2                   services of a collaboration system that allows a plurality of members to interact  
3                   collaboratively in a shared folder in a folder-based file system that is part of an  
4                   operating system with a user interface, the computer data signal comprising:  
5                   program code for including a collaborative interface in the user interface;  
6                   program code for using the collaborative interface to display information  
7                   regarding the members collaborating within the context of the shared folder,  
8                   through the use of the collaborative system;  
9                   program code for determining a change made in the folder-based file  
10                  system; and  
11                  program code for communicating the changes to other members via the  
12                  collaborative system.